

# SHIIP STATIK

VOL. 4  
NO. 2



**STAR PARTS, Inc.**  
SOUTH HACKENSACK, N. J.

BULK RATE  
U. S. Postage  
**PAID**  
Permit No. 1532  
Newark, N. J.

RETURN REQUESTED

Printed in U.S.A.

# SHOP TALK

Text of this issue of SHOP TALK set in 8 pt. StarNews

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## A WORD FROM YOUR EDITOR...

In a past issue of Shop Talk we mentioned the Star AutoSetter was being field-tested, and that it is a new approach to tape operation of typesetting machines.

At the present time, AutoSetters are in operation from coast-to-coast, in Canada and overseas. The AutoSetter is setting the pace in tape-operation, because it is fundamentally correct in design and electronic approach. It was designed with the machinist in mind, and has no maze of switches and mechanical gadgets which require adjustments and lubrication.

Inasmuch as it is the responsibility of the machinists to maintain and service any tape operation unit, it is to your advantage to help management make the selection of the best method of tape operation either for plants considering tape, or for those plants which are purchasing additional equipment.

How would you like an operating unit which was designed and engineered in Star's facilities in New Jersey with features like these:

No obstruction or change in operators position, meaning there is no objection to manually operating a machine with the AutoSetter? (Fact is, operators prefer it to a manual machine because of the push-button elevate and automatic

lateral-rail features.)

Instant speed adjustment—by means of a dial—from 0 to over 1000 operations per minute?

A tape reader that is absolutely silent—without pins or other mechanical means of reading the tape . . . and you can place the reader where you want it?

No oiling or adjusting . . . no springs . . . no leaf switches?

No moving parts in the console . . . only small solenoids in the keyboard unit . . . without springs or other moving parts requiring periodical attention?

No adapter keyboard required?

More and more and more . . .

Just as the Star Quadder has set the pace in the quadding field with its simplicity and dependability . . . so the AUTOSETTER is ahead of the field in tape operation. Get the facts . . . either from your Star representative, an agency, or write to Shop Talk Editor . . . Be informed, let the AUTOSETTER prove itself in your plant . . . reduce maintenance while you increase production. "On approval" of course!

Cordially,



Quido E. Herman

# THE MATRIX CYCLE... HOW TO CHECK THE DANGER POINTS

Continuation of Article  
from Vol. 4, No. 1

## THE TRANSFER RELEASING LEVER

When the second elevator reaches transfer position, a long screw on the second elevator lever depresses the transfer releasing lever, to permit the left end of the lever to clear a block on the transfer slide. Adjust this screw to permit approximately 1/32" clearance between the top of the block and the bottom of the lever. This lever is a safety device to prevent the transfer of matrices and spacebands if there is any obstruction to the positive seating of the second elevator during transfer.

## THE SPACEBAND LEVER PAWL

Because the spaceband lever pawl adjustment changes whenever the transfer slide is adjusted, it is necessary to adjust the spaceband pawl so the edge of the pawl is just inside the angle of the spaceband box rails. It is essential that this pawl, pin and linkage is not worn, to facilitate a positive return position to transfer the spacebands into the spaceband box. To adjust the spaceband lever pawl, place the machine in normal position and use a punch or small rod to adjust the turn-buckle in the direction required to secure the correct adjustment. Be sure the motor is turned off, raise the assembling elevator, and the turn-buckle will be seen from the front of the machine, located between the two levers. Late machines are provided with lock nuts, while earlier machines depend on friction to hold this adjustment.

## TRANSFERRING THE SPACEBANDS

After the matrices are transferred to the second elevator bar, the transfer mechanism again operates to transfer the spacebands into the spaceband box. During this action, both levers operate, closing the transfer slide and the spaceband pawl. The transfer slide has an adjusting screw and lock nut which banks against the spaceband lever buffer washer. This washer is the brass buffer, behind which are three felt washers to

cushion the shock of the closing of the levers. To adjust, back up the machine until the pawl and slide make positive contact. Adjust the screw until there is approximately 1/8" clearance between the ends of the slots in both the transfer finger and the spaceband pawl. The end result must be an adjustment which will transfer one spaceband inside the hook portion of the spaceband pawl, without either pawl or finger making contact. If the washer is worn it should be replaced in order to achieve a positive adjustment each time the parts meet. See page 125 of the Star Parts Catalog.

## ANOTHER IMPROVED STAR PART

Because matrices must be transferred squarely with the second elevator, Star manufactures an Improved Transfer Finger which is straight at this point, but below the bottom of matrix contact, is designed with an angle to the left. The purpose of this angle is to permit spacebands to remain in a normal position when being transferred to the spaceband box, eliminating the "swinging" of a group of spacebands caused by their being aligned vertically on the left side during transfer, when several bands are in a line. Order by Part No. D-220-AA.

## THE SECOND ELEVATOR

When the second elevator on Linotypes, descends to the transfer channel, it is started on its downward travel by the second elevator starting spring. This spring is located in the back of the machine and is attached to the second elevator cam lever by means of a large shoulder screw attached to a rod which goes into the spring. Check the spring for broken sections by removing the screw, rod and spring when the machine is at transfer position, which releases the spring pressure. Intertype machines use a weight instead of a spring. This weight should be inspected, with the machine at transfer position, to be sure it is not contacting any part of the machine which would prevent its full downward motion.

To check the complete stroke of the

second elevator, stop the machine at transfer position at which time the cam roller on the arm should not contact the main cam. If there is contact, it will be necessary to readjust the second elevator lever adjusting bolt, which connects the second elevator lever and the second elevator cam lever. Adjust so the bolt is loose when the machine is in normal position, and tight, holding the roller away from the main cam at transfer position. This adjustment assures positive positioning of the second elevator in both its upper and lower positions.

Check the second elevator for excessive wear in the bar link and plate. Be sure the two screws on top of the plate are tight and there is no foreign material either on the plate or on top of the transfer channel. The bar plate should not be worn permitting side motion of the second elevator when the machine is in transfer position. Later machines have guides, but early machines are dependent upon the correct dimensions of the bar plate and guide post.

#### **THE INTERMEDIATE BAR**

The purpose of the Intermediate Bar is to align the wedges of the spacebands and matrices to prevent their striking the second elevator bar during transfer. The right end of the bar holds the Intermediate Bar Pawl. The height of the bar should be adjusted at transfer position so the tip of the pawl is even with the bottom of the second elevator bar. The side-wise adjustment is to be set so there is a minimum amount of clearance between the bar and the second elevator bar. Check the Intermediate Bar for parallelism by backing up the machine until the top of the first elevator jaws align with the right end of the Intermediate Bar. Sight across the top of the front jaw and adjust the bar. The final check is at transfer position with a full line of matrices . . . there must be clearance between the matrix combinations and the bottom of the Intermediate Bar. The height of the Intermediate Bar is adjusted by the location of the two screws on the top of the Intermediate Channel after the two bolts on the top front of the channel have been loosened. Hold the bar in its upper position, against the adjusting screws, when making this adjustment.

#### **ADJUSTING TO PREVENT JAW AND SECOND ELEVATOR BAR DAMAGE**

If the clutch is engaged before the line of mats is fully transferred to the second elevator bar, the second elevator bar, back jaw, and mats will be damaged. This damage can be prevented by checking and adjusting the precise point at which the machine starts, when the transfer is completed.

To check this timing, be sure the preceding adjustments have been made covering the transfer and spaceband levers. Remove the plunger pin, and lock the spaceband pawl (same as to recast a line). Permit the machine to complete a cycle, automatically stopping at transfer position. Turn off the motor, leaving the clutch lever as it is. Next, unlock the spaceband pawl and permit the machine to transfer to the left VERY slowly. Carefully note the position of the transfer finger at the exact point the safety pawl on the starting and stopping cam, in back of the machine, is heard to trip off. The end of the transfer finger must be completely past the end of the first elevator jaws, indicating that the mats are fully on the second elevator bar. After you have checked this with the motor off, turn the motor on and repeat this operation. The machine will start when the safety pawl trips off. Care should be taken to prevent being struck by the second elevator as the machine starts. The timing is determined by an adjusting screw and lock nut against which a plunger in the starting and stopping cam banks. The screw is near the hinged portion of the pawl while the lock nut is toward the inside of the cam. The outer screw and lock nut on the safety pawl should not be disturbed, as they are part of the basic clutch adjustments. The safety pawl is the pawl in the bottom position of the starting and stopping cam when the machine is at normal position.

#### **ADJUSTING THE TRANSFER**

After determining that the tension of the detents in the first elevator jaws are uniform, the line stop is not binding, and the first elevator slide gibs are correctly adjusted, proceed as follows:

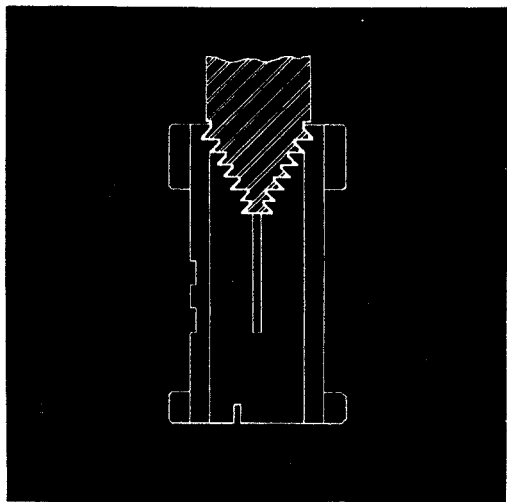
Stop the machine when the elevator is on its up-stroke just after the casting

position, open the vise and select a thin pi mat (new, if possible). Place this mat in the first elevator jaw, close the vise, lock the spaceband transfer, and allow the machine to come to its stopping position at transfer. Turn off the motor.

Place a piece of white paper in the transfer channel near the spaceband pawl. Place an extension light, or the operator's light, so it will shine on the left side of the paper. The paper will then act as a screen which is used to sight the alignment of the matrix teeth in relation to the second elevator bar.

If the machine has an automatic line stop or any interference between the matrix and the left side of the machine, remove the parts so the matrix can be seen. Move the pi matrix by hand, to the right, until its top lugs contact the first elevator jaw pawls.

From the left side of the machine, sight through the matrix combination teeth and determine the location of the end of the second elevator bar. When the alignment is perfect, there will be a small, even area of light visible between each matrix combination and the second elevator bar.



### VERTICAL ALIGNMENT

The height of the matrix is determined by positioning the first elevator vertically, by adjusting the screw on the lower right hand end of the first elevator slide. The adjusting block is attached to the slide by means of a hexagon head bolt, which sometimes becomes bent or loose. The vertical adjusting screw is located in this block and has a lock nut. Be sure there are no metal chips or dirt

on top of the adjusting screw, or on the vise frame against which it banks.

Tightening the adjusting screw, lowers the first elevator slide. Adjustment is made until the light can be seen, indicating perfect vertical alignment. Re-check the clearance between the matrix combination teeth and the intermediate bar, after the lock-nut is tightened.

### SIDE-WISE ALIGNMENT

Side-wise alignment on early Linotypes is quite difficult, as it is determined by the bar plate contacting the inside banking surface of the front intermediate channel plate. There is no adjustment at this point. Provision is made for the adjustment of the entire second elevator guide or head; however, care must be exercised to see that alignment of the head is not disturbed causing misalignment of the guide with the entire first elevator. The adjustment is made by loosening the three bolts on top of the second elevator guide, using the two headless screws on the back surface of the guide as banking points against the face plate. The adjustment consists of changing the location of the first elevator jaws in relation to the second elevator.

Star has a new intermediate channel with hardened replaceable rails, and provision for alignment, by adjusting the surface against which the second elevator bar plate contacts. Later Linotype machines have a similar arrangement, permitting the adjustment to be made by removing two large fillister head screws, behind which are two bushings. Turning these bushings in or out changes the location of the second elevator bar, so a perfect back and forward alignment can be achieved. The Star Intermediate Channel is an item on which there is a replacement allowance, and fits outstanding machines, eliminating a lot of trouble in adjustments. The unit will outlast the machine, as the parts subject to wear are hardened and replaceable.

After the alignment of the matrix and second elevator bar is perfect by sight, transfer the pi mat by hand from the jaws to the second elevator bar. The transfer must be without any bind, except when the matrix passes over the detents. Be sure the bar link is not bent and the second elevator bar plate edge is parallel with the intermediate

channel. The second elevator bar link spring, attached to the second elevator bar link, should be of sufficient tension to securely align the bar plate with the intermediate channel.

Test the machine under power with a short line of mats, then a 30-em line, and finally with a mixed light and bold face line. There should be no indication of bind during any testing. If there is trouble with transfer of a mixed line, check the action of the duplex rail, to see that it moves sufficiently to permit the matrices to fall to their lower position at transfer.

The side-wise location of the second elevator bar on Intertype machines is accomplished by use of the adjustable guide post. The adjustment is made by first loosening the large screw in the center of the guide and then turning the two small headless screws in or out in order to achieve perfect alignment. The large screw, being a lock screw, should be tightened when the adjustment is correct.

#### **ALIGNMENT OF THE SECOND ELEVATOR LEVER**

When the second elevator descends to transfer position, inspect the alignment of the bar with the guide post. Even though this lever is quite large, use of the lever as a means of help in getting on the back step, will cause bending of the lever. The second elevator lever should center the second elevator bar plate on the guide post. There are two methods of restoring the elevator to its

original position, if it is off by not over  $\frac{1}{8}$ ". The brave soul simply grabs the elevator lever when it is just above the guide post and either pulls or pushes on it several times and bends it back to normal. The more conservative machinist will peen the lever with a ball peen hammer, near the lower, heavy end. If the lever must go to the left, have someone hold the level to the left, and peen on the right side. The peening stretches the casting, causing it to move to the left, or vice versa.

The upper location of the second elevator is determined by the upper guide attached and dowelled to the distributor beam. The guide should locate the end of the second elevator bar as close to the end of the distributor box bar as possible, without making actual contact. The guide can be loosened, relocated and redowelled. Double check to see that there is clearance between the bars at all times.

#### **DISTRIBUTOR BOX ALIGNMENT**

From this point, the travel and alignment of matrices in the distributor box and distributor have been covered by previous Shop Talk articles. This was covered in Vol. 1 No. 3 and Vol. 2 No. 4. The articles cover the complete distributor mechanism but it is important to check for matrix lift, bind in the distributor box rails, alignment of the distributor box with the distributor, and that the matrices make a smooth transfer, without bind from the distributor box rails to the distributor bar.

## **PARTS INVENTORY . . . SOME SUGGESTIONS**

One of the requisites of a good machinist is his ability to maintain an adequate parts inventory. Maintaining a parts supply to take care of emergencies as well as normal maintenance replacement parts requires constant vigilance, as well as cooperation from machinists, operators and management. Depending upon the size of the plant, various methods are used.

While it is impossible to maintain an inventory to meet every emergency, the good machinist will see that there are parts to meet normal maintenance requirements. Each plant, including the smallest, should carry some basic parts, such as belts, spring and screw assortments, back jaw, detents, buffers, clutch leathers, star wheels, transfer finger, etc. The same applies to matrices, es-

pecially hyphens, periods, commas and other thin mats which are subject to damage. Each machine should have at least 25 spacebands, because the more spacebands there are in the machine, the less each band is used. This reduces heat, wear, metal adhesion and consequently reduces matrix damage.

Machinists must have the cooperation of management in establishing a proportionate parts inventory. When parts are on hand, representing a nominal investment, it is insurance against production loss of \$10.00 per hour and higher—if there is down-time while waiting for parts. Even with Star's same-day service, loss of production time makes a delay very costly. Management should welcome your suggestions and your interest in maintaining their equipment when this fact is called to their attention.

Inventory systems range from keeping a few parts in a cigar box to a complex cost-determining method, depending upon the thoroughness of the machinist, the plant requirements of cost accounting and the number of machines in operation. The most simple method for a small plant is to use several type-cases, labeling them Assembling, Casting, Distributing etc. Place the small items in the cases according to the designation. Larger items can be placed in drawers, labeled as above. Expanding this system further, some plants keep parts in alphabetical and numerical order in parts bins and steel shelving which Star can supply.

Several small plants use cardboard milk containers, cut to about 2½" high, placing these in drawers. This method works very nicely as they are clean, safe and the supply unlimited. While the fruit-jar system, where the lids are fastened to a board and the jars are screwed to the lids, have the advantage of visibility, there is danger of breakage, and storage is a problem. Most jars are filled to capacity, without regard to classification, and the advantage they have is lost. Also—the small items are always on the bottom!

#### **Don't Kid Yourself!**

Regardless of the system used for storing parts, there is one basic rule which is often broken. **Never place an old part in the stock of new parts!** If a part has served its useful life, discard it

immediately. There are dozens of worn-out star wheels and buffers in plants, as well as broken parts, burned-out heating elements, etc. Throw them out! They only confuse you into thinking you have a supply of parts when you do not.

#### **Maintaining Inventory**

Most machinists find this a problem—because of operators requiring parts during the time a machinist is not in the plant. A record should be kept of all parts used from your inventory to replenish your stock. Some plants keep meticulous records to the extent that a cost is kept on each machine and each part for the machine. Parts used are entered on a card, they are priced and the card used to order parts to maintain a constant inventory. Some plants keep a maximum and minimum on their individual parts, thereby ordering when the part reaches a minimum, bringing the supply to maximum, ordering weekly or monthly.

#### **Simple Inventory Maintenance**

Keep your Star order blanks on a clipboard near the stock of parts. Whenever a part is removed from stock, add it to the order form. If you have used the last of an item, re-order an adequate supply immediately. Otherwise, send your orders to us at regular intervals, such as once a week or once a month. Any system used is an advantage . . . the important thing is to have the part on hand when it is required.

#### **Things to do Today**

Now is the time to go through your supply of parts. Discard the old parts, check the machines for their requirements. Set up an inventory system or at least separate the parts so you can find what you have. Many parts are interchangeable between Linotype and Intertype. This information is in the Star catalog. Bold face numbers are Linotype, while light face numbers are Intertype. Where both are shown side-by-side, the parts are, generally speaking, interchangeable.

Your Star Parts representative will be pleased to help you with suggestions on parts, will help you with your ordering, will see that your order is shipped the same day it reaches the factory or branch. But, there is one thing he won't do—that's sell you parts you don't require.

# GRANDPA SAYS...

It was exactly 2:48 P.M. Wednesday. The back door opened and Grandpa came rushing in the shop, all smiles and out of breath.

"Ain't she a beaut . . . it's really somethin' and it's a lot of fun, too," Grandpa said, interrupting that afternoon cup of coffee I was enjoying.

"Hold on there, Grandpa," I cautioned, "you're about to go in orbit."

"Come along with me, Son, and I want to show you something, before Ma makes me take it back."

And with that, Grandpa was heading out the door, admiring the new little car he just bought. There was nothing to do but to share his joy by taking a little ride to show it to Ma. (Personally I think he wanted a little moral support too, because Ma didn't know he was 'car-shopping'.)

"You know, Son, I didn't get that automatic stuff on the shiftin' like I had before on the other car, cause the pension, and the social insecurity ain't too much, but gee, this is fun to drive . . . just like when me and Ma was younger and all they had in them days was a clutch . . . Why I remember one of them old cars had a clutch that was so rough you'd have to really hang on when you let her out." Grandpa scratched a gear the first time he shifted, but he got the hang of it and was really enjoying driving again.

"Got to thinkin' Son," said Grandpa. "I bet them automobile people made improvements in clutches too, jest like the Star people did in that Adjustable Star



Wheel turning thing they got. Why at the Clarion we got one of them and when you got the starwheel set, she'd slip real smooth and wouldn't tighten up and lock like them old ones."

"Yes, Grandpa," I agreed, "the Star folks make a real good adjustable starwheel tension for either old or new machines, and it is smooth, and doesn't cost much either."

"Yep," said Grandpa, "Jest shows that people can make stuff good if they put their head to it. I think them Star people got that thing down pat, cause they use a couple of pieces of fibre between the brass and steel parts and I betcha that's what does the trick . . . don't you think so Sonny?"

"That's the secret, Grandpa." I assured him.

"Well, Son, let's go in and show this little job to Ma," said Grandpa, as he stopped in his driveway. "Here she comes now, and she's smilin'—how about that!"

"About time you got us a new car," said Grandpa. "Some of the girls been wondering when I'd get you down to look at them."

**OUR COVER** shows the AutoSetter operating in the composing room of the Kansas City (Missouri) Star. It is one of eight AutoSetters in use in this plant. Other newspaper AutoSetter installations include the New York Times, and the Los Angeles Times-Mirror which has fourteen in use or on order. AutoSetter users also include Deluxe Check Printers and other fine commercial and specialty printers in many parts of the country.

The AutoSetter operates silently through the use of solid-state electronics. Aside from a small driving motor and a solenoid for each keyboard key bar, there are no moving parts. This means there are no parts requiring even routine service or maintenance. Because the operating unit is behind the keyboard, there is no obstruction to interfere with manual operation—no change in keyboard touch, either.